



Amended Continuation-In-Part Patent Application for

ELECTRICAL INSULATOR FOR AN ELECTRICAL OUTLET

Technical Field

The present application filed by Calvin L. Shoemaker is a continuation-in-part of U.S. Patent Application Serial Nos. 08/600,062 filed on February 12, 1996 and 09/083,657 filed on February 15, 2000, recently issued as patent 6,222,125, and claims priority thereon pursuant to Title 35 U.S.C. § 120. Further, this is an international application filed under the Patent Cooperation Treaty designating the United States as the Patent Cooperation Receiving Country and International Search Authority for purposes of filing in Canada, Japan, Taiwan, Okinawa, Philippines, etc.

The invention relates to an electrical insulator for an electrical outlet specifically for insulating a person against electrical shock. Further, the invention protects an electrical wall outlet from the elements of the environment and inhibits heat exchange through electrical outlets located inside or outside of buildings.

Background Art

Attempts by international inventors to protect small children against electrical shock from electrical outlets or plugs engaged therewith have had limited success commercially inasmuch as the American-style type of electrical outlets. Other designs of electrical outlets within various countries have given some protection by recessing the outlet into walls, etc., as in Europe, yet a truly effective, easy-to-use, safety product that is useful for both used and unused American-style electrical outlets has not heretofore been invented.

Small plastic inserts that are placed in unused electrical outlets frequently get lost, do not protect electrical wall outlets engaged with a plug and are now considered a choking hazard. Other inventions that attempt to protect children against electrical shock have proven to be cumbersome, limited in effectiveness, and not successful commercially nor aesthetically pleasing to interior decor.

Specifically with respect to prior art, Bruce Patent No. U.S. 5,288,945 contains a pair of identical sliding cover elements that slide within grooves extending outwardly from the outlets, and that have teeth that ratchet with said sliding cover elements. It discloses that it attempts to lock a plug into place, apparently in a ratcheting sort of action, however, not all plugs can be locked into place with this device, it takes two hands to grasp each of the "substantially identical sliding cover elements" to pull them outwards, and a third hand to insert a plug, and it appears to take three hands to disengage a plug stuck therewith. Moreover, once the "substantially identical sliding cover elements" are closed over an unused electrical receptacle, there does not appear a way to grasp the "substantially identical sliding cover elements" in order to pull them outwards, thus opening to access the electrical outlet with a third hand. Finally, the claims are very limited and narrow.

Ray U.S. Patent No. 4,618,740 discloses a device that does not protect effectively if a plug is pulled from an outlet.

Setecka U.S. Patent No. 3,317,881 discloses a device that does not prohibit a small child from inserting a foreign object into the electrical outlet when a plug is not engaged therewith.

Crofton, U.S. Pat. No. 5,113,045 necessitates lengthy electrical wiring and does not protect against electrical shock when engaged with a plug.

Fontaine, U.S. Pat. No. 4,737,599 is a bulky, hard product with slidable members.

Wolf-Taylor U.S. Patent No. 4,733,017 discloses that it is made of "hard plastic or the like." This product can injure a child if said child falls against their device due to such sharp edges. Moreover, Wolf-Taylor discloses in the drawings that it is an unusable product because the electrical cord supplying the electrical outlet with electricity from the breaker box prohibits the travel of the shutters. Specifically, according to Fig. 5 of the drawings, this patent is nonfunctional because the cord extending from the female outlet, as shown, would prohibit the movement of the traverse plates 8 and 9. Further, it appears that you would need three hands to use this product. Notwithstanding the fact this patent is nonfunctional according to the patent drawings, my patent eliminates any springs, holes in the covering extensions and levers.

Thomas U.S. Patent No. 4,607,136 discloses the same flaw as Ray; if a plug is pulled by a child from an outlet that has their device, said child can insert objects into said electrical outlet.

Hill U.S. Patent No. 4,640,564 discloses a device that a child can easily defeat by pulling down the shutter and sticking a foreign object into an electrical outlet equipped therewith.

Thus, accordingly, the subject invention alleviates these disadvantages in most electrical outlets of the type used in American business and homes.

Summary of the Invention

It is an object of the subject invention to protect against electrical shock from an electrical outlet, more specifically, the American-style electrical outlet, commonly used in Japan, Canada and other countries. This new invention accomplishes this electrical protection primarily by using about 1¼" thick amount of foam rubber surrounding the electrical outlet. The thick foam rubber has hollow openings about 1" deep corresponding to each electrical outlet socket, usually two in a normal electrical outlet configuration, said hollow openings within said surrounding foam rubber extending to about 1/8"-1/4" to within the female electrical outlet elements, thus disclosing a thin layer of foam rubber containing slits that guide a plug into the electrical outlet.

Underneath, movable assemblies of the invention are only moved when a certain combination of pressing and squeezing together of the urging extensions is performed, thus compressing the foam rubber, allowing movement of plastic protrusions on said urging extensions to move within channels on a modified faceplate of the new invention in a predetermined pattern, thus opening the covering extensions of the movable assemblies, and allowing plug access to the

electrical outlet power. These urging extensions on the sides of the movable assemblies are under constant pressure from the compressed foam rubber, or similar material, and snap outwards once a plug is removed, thus shutting their respective female electrical outlet element covering extensions.

Further, if a plug is inadvertently partially removed by a small child, for example, tiny nipples or knob-like structures on the edges of the covering extensions tend to grasp said plug in the center thereof where holes in the plug prongs are commonly located, lock the plug into a mechanical connection therewith, and keep the plug from being pulled out from the connection with the outlet.

If the plug is intentionally removed, the movable assemblies and covering extensions snap shut, thus completely disabling access to the electricity by a child, and requiring the complete operation sequence and combination of pressing and squeezing together the movable assemblies to access electrical power.

Moreover, a plastic hump extends from the modified faceplate, thus limiting finger access to the energized plugs. Said plastic hump further has channels underneath that act as guides for the covering extensions to move freely within, and forming a strengthened mechanical connection.

It is another object of the invention to protect an electrical wall outlet against the elements of the environment, and furnish thermal insulation for buildings to prevent unwanted heat exchange.

In sum, the invention has many advantages: once applied to an unused electrical outlet, it protects children against shock by preventing the insertion of improper objects therein; protects the outlet from the environment, acting like a seal thereon until perforated; and inhibits heat exchange through buildings, thus saving on energy costs. Access to the electrical outlet is simple, yet complex enough to deter young children from completing the combination. The invention is completely new, useful and unobvious.

Brief Description of Drawings

Fig. 1 shows a typical embodiment of a perspective, exploded view of the invention.

Fig. 2 shows a cutaway, side view of the main body, and the inner layers of the invention.

Fig. 3 shows a cutaway, exploded end view of the typical embodiment of the invention.

Fig. 4 shows a front view of the typical embodiment of the invention, further showing the cutaway positions of **Fig. 2** and **Fig. 3**.

Fig. 5 shows another embodiment of the invention for a terminal strip.

Fig. 6 discloses a new faceplate with locking, latching mechanisms and new, non-ratcheted channels including a faceplate finger guard hump thereon in the center of the modified faceplate.

Fig. 7 shows a front view of the invention without the foam rubber material, thus disclosing open and shut positions of the lower and upper movable assemblies, further disclosing the protrusions that look like pins or plastic knobs on the modified urging extensions of the lower, exposed, movable assembly engaged with a typical faceplate further disclosing the channels wherein the protrusions can move freely within.

Fig. 8 shows a front, exploded view of a typical movable assembly, and discloses the nipples or knob-like structures on the covering extensions that grip a male plug at holes of the male prongs of said plug.

Fig. 9 shows an exploded, side view and discloses a male, sliding lock of a male part of a movable assembly, a protruding appendage finger guard hump, a female sliding slot of a part of a movable assembly, and strengthening braces from the urging extensions and connecting extensions.

Fig. 10 shows a side view of a modified faceplate of a typical embodiment, and discloses urging extension channels, urging extension protrusion blocks, and faceplate finger guard hump with channels thereunder that allow covering extensions to move freely within.

Fig. 11 shows a front view and discloses narrowed-access, hollow openings, urging extension protrusions that block movement thereof, and finger-pressing tabs on the sides of said urging extensions.

Fig. 12 shows a front view, and discloses narrowed-access, hollow openings of the thick foam rubber.

Fig. 13 shows an exploded, end view with foam rubber on top, movable assembly sandwiched in between, and modified new faceplate beneath.

Fig. 14 shows the best mode that the inventor has contemplated to disclose the new features. Specifically, **Fig. 14** shows a cutaway view of the invention with said (i) cutaway, foam rubber material in the upper socket, (ii) thus exposing the movable assembly in the lower socket, (iii) male prong-gripping nipples or knobs on covering extensions, and (iv) faceplate finger guard hump.

Detailed Description of the Preferred Embodiments

Fig. 1 shows an exploded view of the: (i) main body **10** of foam rubber; (ii) thin layers **11** of foam rubber; (iii) hard, plastic, movable assemblies **69L**; and (iv) an ordinary electrical outlet faceplate. In this embodiment, the two movable assemblies **69L** are attached to the rear of the main body **10**, further sandwiched between the faceplate **17**, and overlapped by the insulating, thin layers **11**. **Fig. 1** shows said two movable assemblies **69L** detached in this exploded view, thus corresponding to the upper and lower portions of the invention, further corresponding to the positions of the upper and lower female electrical elements **2** of the electrical outlet **15**. More specifically, the movable assemblies **69L** are comprised of: (i) urging extensions **64X** and **68Y**, of which the finger-pressing tabs are visible when the invention is attached to the electrical outlet **15**;

(ii) connecting, interlocking means consisting of male sliding lock 68C and female sliding slot 64C; and (iii) covering extensions 68A and 64A. Said covering extensions 68A and 64A move when urged-pressed at the finger-pressing tabs of urging extensions 64X and 68Y, but access to the female electrical elements of the electrical outlet is only achieved if the sides or tabs of urging extensions 64X and 68Y are urged-pressed together such that covering extensions 68A and 64A are urged, thus moved, thus enlarging the gap 88, thus exposing the female electrical elements 2 of the electrical outlet 15, thereby allowing the insertion of a plug. A screw hole 18 gives access to a screw of a faceplate of an electrical outlet.

Fig. 2 shows a cutaway, side view of the main body 10 and thin layers 11 without the movable assemblies or faceplate. In Fig. 2, specifically, groove 12, located on the underside of the invention, allows the movable assemblies to move freely while sandwiched between the compressible insulating material and the outlet faceplate. Positions 22 show the locations where the foam rubber is attached to the faceplate. Further, screw access hole 18 is shown.

Fig. 3 shows a cutaway, exploded, end view of the invention. In Fig. 3, specifically, groove 12 further allows the movable assemblies 69L to move freely while sandwiched between the compressible insulating material of the main body 10 and the outlet faceplate 17. Protruding male element 68C is engaged with female element 64C after being snapped together during assembly. Abutment 64P limits the travel of the movable assemblies. Slits 28 show the relative positions on thin layer 11 of insulating material corresponding to the positions of the female electrical elements of the outlet.

Fig. 4 shows a front view of an embodiment of the invention, further showing the relative cutaway positions of Fig. 2 and Fig. 3.

Fig. 5 discloses another embodiment of the invention in which the invention is formed for a terminal strip. The terminal strip version operates in the same manner as previously explained in the embodiment of Figs. 1-4.

Fig. 6 discloses a faceplate 17 portion of the invention and discloses locking and latching mechanisms consisting of: (i) protrusion block 42; (ii) protrusion channel 43; (iii) urging extension channel 41; (iv) connecting extension fulcrum 46 for movable assemblies so that said movable assemblies can flex enabling the combination movement, and further shows (x) said faceplate finger guard hump 44, and (y) covering extension movement channel 47.

Fig. 7 shows a front view of the invention without the foam rubber material, thus disclosing: (i) shut movable assembly 96L, and open movable assembly 69L, on a typical faceplate 17 embodiment of the up-to-date invention containing: (x) movable assembly urging extensions 64X and 68Y with protrusions 77 that block and prohibit movement of said movable assemblies 96L and 69L when in a static position with protrusion blocks 42 of the faceplate 17, (y) movable assembly connecting extensions 69a and 69b, and (z) movable assembly covering extensions 68A and 64A with male plug-gripping nipples 99; and (ii) modified faceplate 17 showing (x) protrusion channels 47 under (y) finger guard hump 44 that allows movement of the protrusions 77 of the movable assemblies to travel within once the movable assembly urging extensions 64X and 68Y are pressed downward then squeezed together in combination. More specifically in Fig. 7, with respect to the

lower half thereof, the open movable assembly 69L discloses protrusions 77 engaged with protrusion channels 41 after successful pressing and squeezing this movable assembly 69L in proper combination, thus exposing female electrical elements 2 of an electrical outlet. Further, covering extension nipples 99 that engage with the holes of a typical male plug are disclosed.

Fig. 8 shows a top, exploded view of movable assembly (i) urging extensions 64X and 68Y, (ii) connecting extensions 69a and 69b, and (iii) covering extensions 68A and 64A disclosing nipples 99 that grip a male plug at the holes thereof. More specifically, this drawing discloses protrusions 77 on the ends of urging extensions 64X and 68Y, connecting extension vertical finger guard 19, male sliding lock 68C, female sliding slot 64C, connecting extension vertical finger guard 16, covering extension 68A, covering extension 64A, and male plug-gripping nipples 99.

Fig. 9 shows an exploded, end view of a movable assembly, and discloses (i) urging extensions 64X and 68Y, (ii) connecting extensions 69a and 69b, and (iii) covering extensions 68A and 64A with nipples 99 that grip a male plug at the holes thereof. More specifically, this drawing discloses protrusions 77 on the ends of urging extensions 64X and 68Y, connecting extension vertical finger guard 19, male sliding lock 68C, female sliding slot 64C, connecting extension vertical finger guard 16, covering extension 68A, covering extension 64A, and male plug-gripping nipples 99.

Fig. 10 shows a side view of the new faceplate, and discloses (i) the faceplate finger guard hump 44, (ii) the urging extension channels 47, and (iii) urging extension protrusion blocks 42.

Fig. 11 shows a front view of a typical embodiment of the new invention, and discloses protrusions 77 on urging extensions 64X and 68Y.

Fig. 12 cutaway, side view, and discloses (i) the narrowed access hollow openings 8 of a thick foam rubber main body 10, (ii) the thin layers 11, (iii) slits 28, (iv) movable assembly groove 12, and (v) main body-faceplate connection points 22.

Fig. 13 shows an exploded, end view with the (i) foam rubber main body 10 on top, (ii) movable assembly sandwiched in between, and (iii) modified new faceplate 17 beneath.

Fig. 14 specifically shows the typical, preferred embodiment of the invention illustrating the up-to-date improvements of this new invention. A main body 10 is composed of material that can be compressed repeatedly without structural damage, such as closed cell foam rubber. In the above half of the drawing, said main body 10 surrounds the electrical outlet 15 with approximately 1¼" thickness of insulating material, further forming hollow opening 8, thus exposing an approximately 1/8" thin layer 11 of insulation located at the base of the main body 10. Said thin layer 11 of insulating material, may be repeatedly compressed without structural damage, is coated such that it will not absorb water and create a short circuit, and has slits 28 that correspond to the width and location of the female electrical elements of the electrical outlet. The slits 28 need not completely perforate the thin layer 11 of insulating material, but allow easy insertion of a plug into an electrical outlet, and act as guides therefore. Further shown are hard, covering extensions 64A and 68A on movable assemblies 69 that cover the female electrical elements 2 of the electrical outlet 15, said covering extensions on the movable assemblies 69 connected to urging extensions 64X and 68Y

with connecting extension 46, the urging extensions having protrusions 77 that prohibit movement by virtue of protrusions blocks 42, yet that can be urged at urging extensions 64X and 68Y along protrusion movement channel 41 by first pressing towards the outlet anchor, such as a wall or the ground, and then squeezing the urging extensions 64X and 68Y in a combination towards each other, thus opening the gap 88 and allowing insertion of a plug. The connecting extensions and the covering extensions have protruding appendages 16 and 19 that further tend to restrict access to an energized plug connected with female electrical elements 2 of the electrical outlet 15, and move along with the movement of the movable assemblies as they open and shut.

When access to electricity is specifically desired, a person places a plug in a hollow opening 8 with the other hand, presses the urging extensions towards the wall, and squeezes urging extensions 64X and 68Y with one hand, pushes the plug into the electrical outlet, and perforates the thin layer 11 with said plug, further pushing past nipples 99 of covering extensions 68A and 64A until the plug is fully seated into the female electrical elements of the electrical outlet.

Ramifications and Scope of Invention

The descriptions of the invention as previously mentioned contain many specificities that should not be construed to limit the scope of the invention. Some alternative applications and additional ramifications: foreign electrical outlets that have an alternative shape, manufacture of the invention for power strips that have a multitude of outlets joined in series, etc. Further, the shape, topology, concavity, acclivity, color, resiliency, size, and texture, specifically, can vary in addition to the materials used to manufacture the invention. Moreover, the manufacturing process can also vary. Even further, the invention may be manufactured attached to the faceplate.

Further, there are several possibilities in the construction or composition of the invention for common electrical outlets. Additional embodiments and compositions are possible with the same level and effect of protection. The movable assemblies may be manufactured from hard rubber or other nonconductive material or may be manufactured such that they shut the gap 88, in a static state with no plug inserted into the outlet.

It is important to note that each of the parts are effective independently to a lesser degree; the invention is effective with just the compressible, main body of insulation surrounding the female electrical elements of the outlet; the invention is effective with only a partially slitted layer covering the female electrical elements of the electrical outlet; the invention is effective with a combination of said main body and layers without the slidable assemblies. However, synergy exists when the parts are combined to form the product shown in Fig. 14.